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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/561,213 | 01/09/2006 | Kenichi Shimura | Q92193 | 4042 |
| 23373 7590 03/25/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | EXAMINER SOFOCLEOUS, ALEXANDER | |
| | | | ART UNIT 2824 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/561,213

Applicant(s)

SHIMURA ET AL.

Examiner

ALEXANDER G. SOFOCLEOUS

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1, 2, 5, 6 and 8-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3 is/are rejected.
- 7) ☒ Claim(s) 4, 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/19/05, 1/9/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to the following communications: the Election filed December 26, 2007, the Information Disclosure Statement filed December 19, 2005, and the Information Disclosure Statement filed January 9, 2006.
2. Claims 1-18 are pending in the case. Claims 1, 2, 5, 6, and 8-18 are withdrawn from consideration. Claim 3 is an independent claim.

Election/Restrictions

3. Claims 1, 2, 5, 6, and 8-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on December 26, 2007.

The restriction requirement among the linked inventions is subject to the nonallowance of the linking claim, claim 3. Upon the indication of allowability of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise requiring all the limitations of the allowable linking claim(s) will be rejoined and fully examined for patentability in accordance with 37 CFR 1.104. Claims that require all the limitations of an allowable linking claim will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; Amendments submitted after allowance are governed by 37 CFR 1.312.

Applicant(s) are advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, the allowable linking claim, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. In re Ziegler, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Information Disclosure Statement

4. Acknowledgment is made of Applicant's Information Disclosure Statement (IDS) Form PTO-1449 filed on December 26, 2007 and January 9, 2006. These IDS have been considered.

5. It is noted that on the IDS filed December 26, 2006, all foreign patent documents references and Non Patent Literature Documents have been struck-through because these documents were not received.

However, for purposes of compact prosecution, the following documents (along with corresponding U.S. Patents, if found) have been retrieved and placed on PTO-892 to reflect consideration:

JP 2001-273759 (retrieved from EAST)

JP 2002-110938 (retrieved from EAST; corresponds to U.S. Patent 6,556,473)

JP 2002-280526 (retrieved from EAST)

JP 2002-289807 (retrieved from EAST; corresponds to U.S. Patent 6,590,803)

JP 2003-209226 (retrieved from EAST; corresponds to U.S. Patent 6,717,845)

JP 2004-179192 (retrieved from EAST; corresponds to U.S. Patent 6,927,468)

"A Low Power 1 MBit MRAM Based on 1T1MTJ Bit Cell Integrated With Copper Interconnects" (retrieved from IEEE)

The following documents were not retrievable, however, the related U.S. Patents have been cited on PTO-892:

JP 9-204770 (corresponds to U.S. Patent 5,659,499)

JP 2002-522915 (corresponds to U.S. Patent 6,510,078)

Priority

6. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

7. Figures 35A and 35B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective

action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

8. The abstract of the disclosure is objected to because for the following minor informalities: phraseology which can be implied.

In the Abstract line 1, it is suggested to change "The present invention provides a technique" to --A technique--.

In the Abstract lines 6-7, it is suggested to change "an MRAM according to the present invention is composed of" to --An MRAM is composed of--.

Correction is required. See MPEP § 608.01(b).

Claim Objections

9. Claim 3 is objected to because of the following informalities: the recited limitation "a magnetic field control structure introducing a magnetic field" may benefit from some minor rephrasing to be consistent with the terminology present in the Specification and Figures.

Based off of the disclosure, it appears that the "magnetic field control structure" is the "magnetic shielding structure 26" in Figure 4? Applicant's assistance is appreciatively requested.

Additionally, assistance is appreciatively requested regarding what is meant by "introducing a magnetic field." This appears to have been a literal translation and may need rephrasing? It is suggested that Applicant review the wording of the pending

claims and make any necessary corrections.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwarzi (U.S. Patent 6,510,078) in view of Lenssen et al. (U.S. Patent 6,661,071).**

Regarding independent claim 3, Schwarzi teaches a magnetic random access memory (Fig. 9) comprising:

a magnetoresistance element (see Fig. 8: 7, 8, 9; see column 9, lines 47-50);

a first wiring (Fig. 8: 5) through which a write current is flown for writing data into said magnetoresistance element;

a first yoke layer (Fig. 8: 4') formed of ferromagnetic material, extended in said first direction, and covering at least portion of a surface of said wiring;

Schwarzi is silent with respect to a magnetic field control structure introducing a magnetic field developed by magnetic poles appearing at ends of said first yoke layer in said first direction away from said magnetoresistance element.

Lenssen et al. teach a magnetic shield (see Fig. 1, 2, 3, 4: 5) and the write line (see Fig. 3: 11) extends beyond the MRAM and the magnetic shield.

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teachings of Lenssen et al. to the teachings of Schwarzi such that the magnetic field control structure of Lenssen et al. is implemented around the MRAM of Schwarzi for the purposes of providing shielding against strong magnetic disturbing fields (see Lenssen et al. column 1, lines 55-61). It appears that the magnetic shielding layer of Lenssen et al. would be capable of shielding the MRAM of Schwazi similar to that of the "magnetic field control structure" as recited in claim 3.

12. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwarzi (U.S. Patent 6,510,078) in view of Kunikiyo et al. (U.S. Patent 6,567,299).

Regarding independent claim 3, Schwarzi teaches a magnetic random access memory (Fig. 9) comprising:

- a magnetoresistance element (see Fig. 8: 7, 8, 9; see column 9, lines 47-50);
- a first wiring (Fig. 8: 5) through which a write current is flown for writing data into said magnetoresistance element;
- a first yoke layer (Fig. 8: 4') formed of ferromagnetic material, extended in said first direction, and covering at least portion of a surface of said wiring;

Schwarzi is silent with respect to a magnetic field control structure introducing a magnetic field developed by magnetic poles appearing at ends of said first yoke layer in said first direction away from said magnetoresistance element.

Kunikiyo et al. teach a coil-like inductor (Fig. 39, 40: ID) generating a magnetic field that surrounds the MRAM and shields the MRAM from noise (see column 38, lines

21-24).

It would have been obvious to one of ordinary skill in the art to apply the teachings of Kunikiyo et al. to the teachings of Schwarzzi such that a coil-like inductor is used to protect the MRAM of Schwarzzi from noise for the purpose of reducing noise. It appears that the coil-like inductor of Kunikiyo et al. would be capable of shielding the MRAM of Schwazi similar to that of the "magnetic field control structure" as recited in claim 3.

Allowable Subject Matter

13. Claims 4 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

With respect to dependent claim 4 (and 7 which further depends), there is no teaching, suggestion, or motivation for combination in the prior art to a magnetic shield structure positioned between the ends of the first yoke layer and the magnetoresistance element.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

CONCLUSION

When responding to this office action, applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner in locating appropriate paragraphs.

A shortened statutory period for response to this action is set to expire three months and zero days from the date of this letter. Failure to respond within the period for response will cause this application to become abandoned (see MPEP 710.02(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Sofocleous whose telephone number is 571-272-0635. The examiner can normally be reached on 7:00am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on 571-272-1869. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AGS

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/Richard Elms/

Supervisory Patent Examiner, Art Unit 2824

3.21.08